ALGEBRA 1 Name: Solutions

A Finely Crafted O'Brien Unit 9 Test

Computer Section: You may use programs on your computer like Geogebra, Numbers, Calculator. You may not use the internet or notes. Use a pencil. Show all work and circle your answer. Use your time wisely. When you finish, put away your computer and you can come up to get the non-computer part—you may continue to work on both sections without your computer.

Bonus. Write down the quadratic formula. If you're not sure if you are correct, raise your hand, and I will check your answer.

$$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$$

1. You can check any factoring problem by **expanding** the answer. Is the following factoring problem done correctly? Check by **expanding** the answer. If it is incorrect, **give the right answer**.

Problem:

Factor $10p+4pq$.

Student working:

$10p+4pq$

$=2p(8+2q)$

Expanded answer:

$16p+4pq$

$2p(5+2q)$

2. Using the equation $y=2(x+3)^2-2$, find the following information and graph the function. Be sure to label your axes with numbers!

a. Write the coordinates of the vertex.

$(-3,-2)$

b. Write the equation of the axis of symmetry.

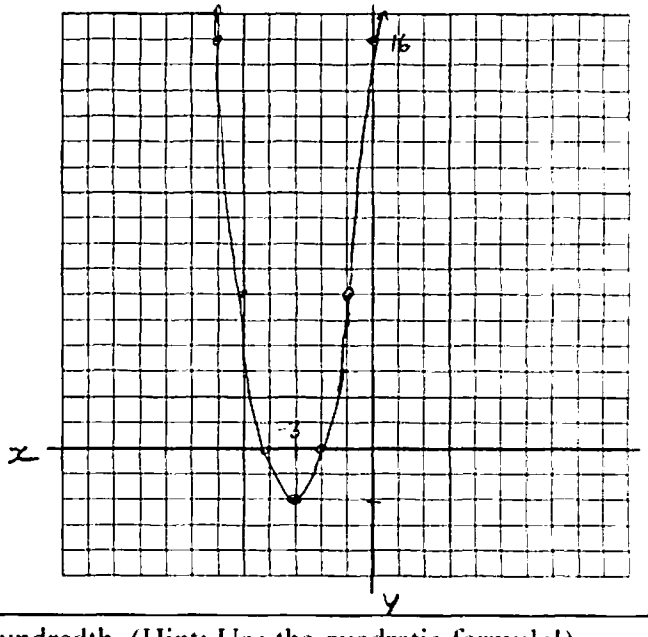
$x=-3$

c. Write the y-intercept.

16

d. Write the x-intercepts.

-4 and -2



3. Find the zeros of $y=x^2-\frac{2}{5}x-\frac{5}{7}$ accurate to the nearest hundredth. (Hint: Use the quadratic formula!)

$a=1$

$b=-5$

$c=-7$

$$x=\frac{5\pm\sqrt{25+28}}{2}=\frac{5\pm\sqrt{53}}{2}$$

$x=-1.14$ or 6.14

NON-CALCULATOR Name:_____

7. Factor each trinomial.

a. x^2+5x+6

$(x+3)(x+2)$

b. $x^2-3x-28$

$(x-7)(x+4)$

8. Solve each equation (factoring is a good method to use for these!).

a. $x^2-8x+12=0$

$(x-6)(x-2)=0$

$x-6=0 \quad x-2=0$

$x=6$ or 2

b. $x^2+7x=-10$

$x^2+7x+10=0$

$(x+5)(x+2)=0$

$x+5=0 \quad x+2=0$

$x=-5$ or -2

9. Expand and simplify. Show all steps.

a. $(t-6)(t+6)$

$t^2+6t-6t-36$

t^2-36

b. $(2x+5)(x-4)$

$2x^2-8x+5x-20$

$2x^2-3x-20$

10. Mr. Doubleday claims that x^2-x-12 can be factored two different ways: $(x+4)(x-3)$ or $(x-4)(x+3)$. Do you agree with Mr. Doubleday? Why or why not?

No! $(x+4)(x-3)=x^2+x-12$ doesn't work.

$(x-4)(x+3)=x^2-x-12$ works!